

## AN OBSERVATIONAL PILOT STUDY ON COMPLICATIONS RELATED TO LONG TERM BLADDER MANAGEMENT IN PATIENTS WITH NEUROGENIC BLADDER SECONDARY TO SPINAL CORD INJURY

### Hypothesis / aims of study

This study is to observe the best management for bladder drainage, between clean intermittent self-catheterization (CISC) to non CISC group for patients with neurogenic bladder secondary to spinal cord injury (1). The non CISC group practices either long term urinary catheter per urethra, suprapubic catheter, condom catheter or spontaneous voiding. Evaluation of the renal function and the rate of urinary tract infection in each patient was performed (2, 3). This study also observe the compliance of patients towards 4 hourly bladder drainage for those undergoing CISC and timely urinary catheter change for those with indwelling urinary catheters either per urethra or via suprapubic catheter.

### Study design, materials and methods

This was an observational pilot study at a single institute. All male and female patients aged 18 years old and above who has neurogenic bladder secondary to trauma induced spinal cord injury for more than 2 years was included. Their medical records were traced and relevant information were extracted. The study population was divided into clean intermittent self-catheterization (CISC) group and non CISC group. Renal function was calculated as the difference between the initial and the latest creatinine level. Correlation and comparison were made between the two groups based on demographics, level of spinal cord injury, types of catheters used, compliance rate to CISC or timely changed of indwelling catheters, rate of urinary tract infection and differences between current and previous creatinine level. Data was then analyzed with SPSS Statistics Base Version 22.0

### Results

A total of 119 patients fulfilled the inclusion criteria. 77.3% (n=92) were male and 22.7% (n=27) were female. The age group ranged from 18 to 80 years old. Majority of them, 34.45% (n=41) belongs to the age group of 31 to 40 years old. The most common causes of spinal cord injury were motor-vehicle accident 79.8% (n=95), fall 17.6% (n=21) and alleged assault or industrial injury 2.5% (n=3). The level of spinal cord were as follows, thoracic spine 49.6% (n=59), cervical spine 36.1% (n=43), lumbar spine 13.4% (n=16) and sacrum 0.8% (n=1). As for method of bladder emptying, CISC 45.4% (n=54) whereas non CISC 73.6% (n=65). Compliance rate to CISC or timely changed of indwelling catheters was not able to be determined due to incomplete documentation. The use of CISC showed improvement in renal function, however this was not statistically significant (p=0.524). Patients who practices CISC also has lower rate of infection 85.2% (n = 46) as compared to the non CISC group, however the result was also not statistically significant (p=0.508).

### Interpretation of results

Long term practice of CISC in patients with neurogenic bladder secondary to spinal cord injury was observe to improve renal function and also has a lower rate of urinary tract infection.

### Concluding message

In this pilot study, CISC was observed as a better option for long term bladder management in patients with neurogenic bladder secondary to spinal cord injury. However, it would be beneficial to perform this study again in a bigger population in order to generate statistically significant results. Proper documentation of patients' notes is also important to allow comprehensive data analysis and to avoid artefacts.

### References

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3. El-Masri WS, Chong T, Kyriakides AE, Wang D; Long term follow up study of outcomes of bladder management in spinal cord injury patients under the care of the Midlands Centre of Spinal Injuries of Oswestry; Spinal Cord; 2012 Jan; 50(1); 14-21

### Disclosures

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